

Paradigm Leveling in Non-Standard Russian

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1. Introduction

Paradigm leveling has been extensively studied in different linguistic traditions (e.g. Albright 2002, 2010; Anttila 1977; Benua 1997; Bybee 1985; Kiparsky 1982, 2002; Kuryłowicz 1949; Kenstowicz 1996; Mańczak 1958; McCarthy 2005; Steriade 2000). We analyze several leveling processes currently taking place in Russian, focusing on non-standard innovative verb forms. We show that leveling can simultaneously go in two opposite directions, but some innovations (involving underapplication rather than overapplication of alternations) are more frequent. We discuss examples of alternations that are unattested in standard Russian and examine different factors that influence leveling.

Unfortunately, Russian corpora contain almost no non-standard forms that we were interested in, so we had to look for them on the Internet. Estimating relative frequencies of different forms found there is a challenge because the counts provided by search engines are extremely unreliable. To circumvent this problem, we used the following strategy.

First we established what variants of a particular form are attested (an example is analyzed in section 2.2.1). Then we included all variants in one search, i.e. asked the search engine to look for them simultaneously. We sorted the results by date (if they are sorted by relevance, bigger sites, which tend to pay more attention to the literary norm, are given priority) and looked through all of them or through the first 1000, which is the maximum allowed by search engines. We excluded repeating or irrelevant hits by hand and counted different forms' frequencies.¹ If we found that a variant is attested, but it did not

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¹ Under irrelevant hits we mean the obvious cases when a verb form that we were looking for coincided with some other form (say, a misspelled noun form) etc.

get into the search sample, it is mentioned separately. We always used the Yandex search engine (www.yandex.ru).

Finally, let us present some basic facts about Russian verb system. Verbs have two main stems: the present/future tense stem and the past tense stem (also used in infinitives). Imperfective verbs have synthetic present forms and analytic future forms (*byt'* 'to be' + infinitive). Perfective verbs have synthetic future forms and no present forms.² Correlation between the two stems determines the verb class. Deriving one stem from the other may involve truncation or addition of the final consonant or vowel, stress shift and various alternations. There are several approaches to dividing verbs into classes. In this paper, we rely on the one developed by Roman Jakobson and his followers (e.g. Jakobson 1948; Townsend 1975). According to it, Russian has 23 verb classes (or 24 if so-called *B-verbs* are counted as a separate class) and several anomalous verbs.

2. Getting rid of consonant alternations

2.1 Historic consonant alternations in Russian

Russian has historic consonant alternations at the end of some stems. Diachronically, they result from several processes schematically shown in (1). To avoid confusion, we use transliteration rather than transcription throughout the paper, making additional comments wherever necessary.

- (1) $g / k / x$ before front vowels = $\check{z} / \check{c} / \check{s}$ (Slavic first palatalization) or palatalized $z / c / s$ (Slavic second palatalization)

$g / k / x + j = \check{z} / \check{c} / \check{s}$

$d / t + j = \check{z} / \check{c}$ or $\check{z}d / \check{s}\check{c}$ (in the forms borrowed from Old Church Slavonic, or OCS, where $d / t + j = \check{z}d / \check{s}t$)

$z / s + j = \check{z} / \check{s}$

$b / p / v / m + j = bl / pl / vl / ml$ (with palatalized *l*)

$st / sk / kt / gt + j = \check{c}$ or $\check{s}\check{c}$ (in the forms borrowed from OCS)

These alternations were present in various inflectional paradigms and in derivation, but were subsequently lost in many cases. In nominal paradigms, they can now be seen only in several words with different singular and plural stems (e.g. *krjuk* 'hook_{NOM.SG}' – *krjuka* 'hook_{GEN.SG}' –

² Verbs are inflected for person and number in the present and future tenses and for number and gender (only in the singular) in the past tense because historically, past tense forms are participles that lost their auxiliary.

krjuč'ja 'hook_{NOM.PL}' – *krjuč'ev* 'hook_{GEN.PL}') and in some frozen forms. The latter include archaic forms used in idiomatic expressions like (2) and several surviving Vocative forms like *bože* from *bog* 'god'.

(2) *počit' v boze*

*die*_{INF} in *god*_{LOC.SG}

'to pass away' (the form *boze* from *bog* is now replaced with *boge*)

Verbal paradigms in classes A, I, E and G-K retained consonant alternations in standard Russian. But, as we demonstrate in the following sections, these alternations are often omitted or distorted in non-standard examples. A cursory examination of the data suggests that the same is true for the suffixes associated with alternations in standard Russian: *-e* used to form comparatives from some adjectives and adverbs (e.g. *suxoj* 'dry' / *suxo* 'dryly' – *suše* 'drier, more dryly'), *-enij-* deriving nouns that denote a process from verbs, diminutive or derogative *-ik-* etc. However, we do not discuss them in this paper.

2.2 Classes I and E

Classes I and E are morphologically similar, except for the thematic vowel at the end of the past tense stem. They have consonant alternations in the 1SG present/future form and in the passive past participle: e.g. *brosit'* 'to throw' – *brošu* 'throw_{FUT.1SG}', *brosiš* 'throw_{FUT.2SG}' etc. – *brošennyj* 'thrown_{M.NOM.SG}'.³

2.2.1 What can happen to alternations

Class I is the only productive class with alternations. A lot of novel verbs were added to it in the last decades. As we show in section 2.2.2, in this group of verbs problems with alternations are especially frequent. So let us take one of them, non-standard *zafrendit'* 'to include in one's friend list',⁴ as an example to see what can happen to alternations.

The following 1SG future forms of this verb can be found on the Internet: *zafrenžu* with the standard *d//ž* alternation, *zafrenždu* with a *d//žd* alternation originally coming from OCS (see (1)), *zafrendju* lacking alternation and several variants with alternations unattested in standard Russian. Among them are *zafrendlju*, *zafrendžu*, *zafrenču*,

³ Here and below, such claims do not apply to the stems that end in non-alternating consonants.

⁴ We chose a prefixed perfective verb because its passive past participle is more frequent. Here and below, we did not count so-called short forms of participles.

zafrendču, *zafrendšu* and *zafrenšču*. These alternations (we will further call them “incorrect”) result from the inappropriate use of epenthetic *l* (*d // dl*), adding the alternating consonant to the stem rather than replacing the final consonant by it (*d // dž*), choosing a wrong alternating consonant (*d // ě*, *d // šč*) or the combination of two last strategies (*d // dč*, *d // dš*). Notably, three of these forms allow the speaker to kill two birds with one stone: to have an alternation and to keep the stem constant. Not to miss any variants, we looked for all possible combinations of alternating consonants, stem-final *d* and epenthetic *l*.

We also searched for passive past participle forms and found four variants mentioned in Table 1 below. After the list of possible variants was established, we estimated their relative frequency using the method described in the introduction. As Table 1 shows, some 1SG variants did not get into our corpus sample. Thus, we cannot make any conclusions about their frequency with respect to other forms, but it is clear that they are all very rare (only several occurrences of each were found).

Alternations	“Correct”	No alternation	“Incorrect”
1SG future form	599, 66.6% (<i>zafrenžu</i>)	248, 27.6% (<i>zafrendju</i>)	50, 5.6% (<i>zafrendžu</i>), 2, 0.2% (<i>zafrendlju</i>)
Passive past participle	374, 74.5% (<i>zafrenžennyj</i>)	85, 16.9% (<i>zafrendennyj</i>)	36, 7.2% (<i>zafrendžennyj</i>), 7, 1.4% (<i>zafrendlennyj</i>)

Table 1. The incidence of different forms from *zafrendit'*

At the same time, we looked for examples of overapplication of alternations. To limit our search a little bit, we went through all possible consonant combinations for all finite forms (obviously, excluding the 1SG future form). The following variants of the stem are attested: *zafrendl-* (2SG, 3SG, 2PL future forms, M.SG, F.SG, PL past forms), *zafrenž-* (3SG, 2PL, 3PL future forms, M.SG, F.SG, PL past forms) and *zafrendž-* (2PL future form, M.SG, F.SG, PL past forms). However, even the most frequent of these variants, *zafrendlil* (M.SG past form), is very rare: only 27 occurrences were found. There were just a couple of occurrences of any future form. The corresponding variants without alternations are found on the Internet in thousands (in case of past forms) or hundreds (in case of future forms).

2.2.2 Factors influencing the distribution of alternations

We could identify the following factors that influence the distribution of alternations. Firstly, less frequent verbs lack alternations more often.

Secondly, non-standard verbs have more forms without alternations. Thirdly, the degradation of alternations depends on the final consonant of the stem. More problems arise with stems ending in obstruent clusters, less problems with stems ending in labials, where the epenthetic *l* is used.

To assess the role of the first and third factors independently, we compiled three sets of novel non-standard I class verbs: 30 verbs with stems ending in labials, 14 verbs with stems ending in obstruent clusters and 38 other verbs. We took only unprefixated imperfective verbs. For a half of the verbs in every set, more than 100 1SG present forms were found on the Internet (we will call them “frequent”).⁵

We searched for 1SG forms of every verb with “correct” alternations and without them using the method described in the introduction. We counted variants, limiting ourselves to 100 first occurrences in case of the more frequent verbs. The results are shown in (3)–(5) and in Table 2. The first figure in parentheses is the number of forms with alternations.⁶

- (3) a. *farmit'* ‘to farm’ (100|0), *nubit'* ‘to noob’ (100|0), *folovit'* ‘to follow’ (99|1), *instagramit'* ‘to use Instagram’ (98|2), *strimit'* ‘to stream’ (98|2), *stopit'* ‘to stop’ (98|2), *program(m)it'* ‘to program’ (97|3), *zunit'* ‘to zoom’ (96|4), *spamit'* ‘to spam’ (96|4), *bekapit'* ‘to back up’ (95|5), *fotošopit'* ‘to use Photoshop’ (95|5), *offtopit'* ‘to make off-topic comments’ (92|8), *kreativit'* ‘to do something creative’ (92|8), *flejmit'* ‘to flame’ (71|29), *serfit'* ‘to surf’ (35|65)
- b. *dampit'* ‘to dump’ (89|6), *test-drajvit'* ‘to do a test drive’ (86|12), *tajmit'* ‘to time’ (74|5), *gejmit'* ‘to game’ (61|36), *tajpit'* ‘to type’ (48|14), *jutubit'* ‘to use YouTube’ (36|13), *skajpit'* ‘to use Skype’ (35|9), *šejpit'* ‘to shape’ (31|7), *karvit'* ‘to carve’ (29|4), *xelpit'* ‘to help’ (28|3), *panoramit'* ‘to make panoramic pictures’ (22|1), *dajvit'* ‘to dive’ (11|5), *èskejpit'* ‘to escape’ (9|1), *sejfit'* ‘to save’ (6|4), *zip(p)it'* ‘to create .zip files’ (5|1)
- (4) a. *kraftit'* ‘to craft’ (84|16), *postit'* ‘to post’ (77|23), *konnektit'* ‘to connect’ (60|40), *fiksit'* ‘to fix’ (23|77), *kopipejstit'* ‘to copy and paste’ (14|86), *kapsit'* ‘to use capital letters’ (4|96), *jandeksit'* ‘to use Yandex’ (2|98)

⁵ We took all such verbs we initially came up with and a matching number of less frequent verbs because they are easier to find. Our lists are not exhaustive, but rather full.

⁶ Most verbs are related to English computer terminology and games (many of them are used despite the fact that there are analogues in literary Russian).

- b. *skriptit'* 'to script' (23|30), *selektit'* 'to select' (17|40), *adaptit'* 'to adapt' (1|2), *pinoteksit'* 'to use Pinotex' (0|1), *faerfoksit'* 'to use Firefox' (0|2), *linuksit'* 'to use Linux' (0|2), *faksit'* 'to fax' (0|10)
- (5) a. *sabmitit'* 'to submit' (89|11), *rebutit'* 'to reboot' (88|12), *frendit'* 'to include in the friend list' (86|14), *invajtit'* 'to invite' (83|17), *kolbasit'* 'to to shake, kill etc.' (80|20), *fludit'* 'to flood' (79|21), *kommentit'* 'to comment' (75|25), *sapporitit'* 'to support' (75|25), *kajtit'* 'to move constantly' (74|26), *kopirajtit'* 'to copyright' (61|39), *apdejtit'* 'to update' (60|40), *rejtizit'* 'to raise' (55|45), *resetit'* 'to reset' (53|47), *apgrejdit'* 'to upgrade' (52|48), *rejditi'* 'to raid' (45|55), *trejdit'* 'to trade' (22|78), *brauzit'* 'to browse' (18|82), *frilansit'* 'to freelance' (9|91), *čatit'sja* 'to chat' (2|98)
- b. *foldit'* 'to fold' (26|21), *kompliitit'* 'to complete' (26|7), *vardit'* 'to ward' (25|6), *splitit'* 'to split' (6|3), *skejtiti'* 'to skate' (2|2), *daunlodit'* 'to download' (9|23), *deliitit'* 'to delete' (6|53), *insertit'* 'to insert' (5|18), *printit'* 'to print' (4|19), *vikipedit'* 'to use Wikipedia' (4|27), *fajtit'* 'to fight' (2|9), *startit'* 'to start' (2|15), *odinèsit'* 'to use 1C (Russian accounting software)' (1|11), *snoubordit'* 'to snowboard' (1|17), *èkspendit'* 'to expand' (0|1), *lulzit'* 'to make fun' (0|2), *pejntit'* 'to paint' (0|2), *prezentit'* 'to present' (0|3), *čejziti'* 'to chase' (0|5)

Alternations	Labials		Obstruent clusters		Other stems	
	frequent	infrequent	frequent	infrequent	frequent	infrequent
Yes	1362, 90.8%	570, 82.5%	264, 37.7%	41, 32.0%	1106, 58.2%	119, 32.8%
No	138, 9.2%	121, 17.5%	436, 62.3%	87, 68.0%	794, 41.8%	244, 67.2%

Table 2. The incidence of 1SG forms with and without alternations

The difference between frequent and infrequent verbs is significant in the “labial” and “other stems” groups and on the whole ($p < 0.002$ according to the chi-square test for all comparisons). The “obstruent cluster” group shows the same tendency as two others, but the difference between frequent and infrequent verbs does not reach significance. As for the role of the final consonant of the stem, the differences between any two groups are significant both if all verbs are counted and if only the frequent ones are taken ($p < 0.001$ for all comparisons).⁷

⁷ The latter comparison is more appropriate because these groups are more balanced.

It is also interesting to note how many verbs have more forms with alternations than without them. This is true for 29 out of 30 “labial” verbs and for 3 out of 14 “obstruent cluster” verbs. In the “other stem” group, it is true for 14 out of 19 frequent verbs and for 4 out of 19 infrequent verbs. The difference between these subgroups is significant ($p=0.003$ according to Fisher’s exact test), as well as the difference between “labial” and “other stem” verbs on the whole ($p<0.001$).

Let us add a couple of observations to this picture. Verbs with the stems ending in labials not only rarely lack alternations, but also almost never have “incorrect” ones, although singular examples like *offtopču* from *offtopit’* ‘to post off-topic comments’ can be found. The epenthetic *l* is sometimes added even to stems that end in non-alternating consonants: e.g. *banlju* from *banit’* ‘to ban’. Stems ending in obstruent clusters are characterized not only by numerous forms without alternations, but also by a particular diversity of “incorrect” alternations. For example, the following 1SG present forms from *postit’* ‘to post’ are attested: *pošču* (“correct” alternation), *postju* (no alternation), *postlju*, *poščšču* (“correct” alternation reduplicated), *posču* (“correct” alternation, but only for the second consonant), *posšu*, *posšču*, *postču*, *postšu*, *postšču*, *postsču*, *poščču*, as well as *pošču* and *posšču* (where ‘šč’ is not one letter, but a combination of ‘š’ and ‘č’).

To show that non-standard verbs lack alternations more often, we compiled two sets of verbs ending in *-dit’* that differ according to this criterion. To match them in frequency, we took only the verbs that have 500–50000 occurrences of the 1SG present/future form on the Internet (this is a rough estimate because we did not look through these results). The first set in (6a) was selected from the database of Russian verbs (www.slioussar.ru/verbdatabase.html).⁸ The second one in (6b) was selected from novel verbs listed in (5a). Prefixed verbs were taken only if corresponding unprefixed ones are absent or very rare. We excluded verbs with homonyms, verbs marked as colloquial⁹ and the cases where more than 50% forms lack alternations: two verbs with paradigm gaps from the first set (we return to such verbs below) and *trejdit’* ‘to trade’ from the second. *Trejdit’* has no special properties, we left it out for the

⁸ It was created by Natalia Slioussar on the basis of “The grammatical dictionary of Russian” (Zaliznyak 1987) and contains more than 27000 verbs.

⁹ All these verbs were derogative rather than non-standard in the same sense as the verbs in (3)–(5), so we did not consider including them in the second group.

symmetry (in any case, this biases the results against our hypothesis). We estimated the distribution of 1SG forms with and without alternations for all verbs in (6a-b) in the same way, as we did in (3)–(5) above.

- (6) a. *molodit'sja* ‘to try to look younger’ (60|40), *pogodit'* ‘to wait a little’ (75|25), *prigvozdit'* ‘to nail down’ (79|21), *vynudit'* ‘to force’ (82|18), *nasladit'sja* ‘to enjoy’ (89|11), *čadit'* ‘to emit fumes’ (90|10), *plodit'* ‘to produce’ (92|8), *gromozdit'* ‘to pile up’ (95|5), *oblagorodit'* ‘to ennoble’ (95|5), *učredit'* ‘to found’ (95|5), *xolodit'* ‘to freeze’ (95|5), *beredit'* ‘to irritate’ (96|4), *oxladit'* ‘to cool’ (96|4), *trudit'* ‘to load with work’ (96|4), *ščadit'* ‘to spare’ (96|4), *prudit'* ‘to pond’ (97|3), *stydit'* ‘to shame’ (97|3), *gorodit'* ‘to fence’ (98|2), *dosadit'* ‘to annoy’ (98|2), *ogradit'* ‘to guard’ (98|2), *snabdit'* ‘to supply’ (98|2), *solodit'* ‘to malt’ (98|2), *zarjadit'* ‘to load’ (99|1), *napomadit'* ‘to use lipstick, to pomade’ (99|1), *operedit'* ‘to pass ahead’ (99|1), *ostudit'* ‘to cool’ (99|1), *soorudit'* ‘to construct’ (99|1), *cedit'* ‘to strain’ (99|1), *narjadit'* ‘to dress up’ (100|0), *rjadit'* ‘to dress up, to ordain’ (100|0)
- b. *frendit'* ‘to include in the friend list’ (86|14), *fludit'* ‘to flood’ (79|21), *apgrejdit'* ‘to upgrade’ (52|48)

In total, we found 2809 (93.6%) forms with alternations and 191 (6.4%) forms without them for the verbs in (6a) and 217 (72.3%) and 83 (27.7%) for the verbs in (6b). The difference is significant ($p < 0.001$ according to the chi-square test). However, the verbs in (6a) appear in many contexts from where the verbs in (6b) are excluded, in particular in books, mass media articles and other texts that undergo proofreading. To compare two groups in the same contexts, we searched for documents that include a form of any verb from (6a) with correct alternation and a form of any verb from (6b) without it, and vice versa. We found 66 documents of the first type and 27 documents of the second type. The difference is significant ($p < 0.001$ according to the chi-square test).

A different example of nonstandardness comes from a group of verbs that have no normative 1SG present/future form. Synchronically, they do not have any properties that can be held responsible for the paradigm gap, but Baerman (2008) identifies potential diachronic causes. A computational model is suggested in (Daland et al. 2007). We can add that if 1SG forms from these verbs are used nevertheless, they often lack alternations. An example is given in Table 3 (the proportion of alternations correlates with the relative acceptability of 1SG forms).

Alternation in 1SG future form	Yes	No
<i>ubedit'</i> 'to persuade'	348, 44.6%	433, 55.4%
<i>ubedit'sja</i> 'to become persuaded'	658, 70.4%	277, 29.6%
<i>razubedit'</i> 'to dissuade'	373, 82.5%	79, 17.5%

Table 3. The incidence of different forms from *ubedit'* and its derivatives

We also checked whether there would be more problems with alternations in the 1SG forms than in the passive past participles. When we simply searched for variants with and without alternations, the difference was significant for the verbs not ending in labials. Then we realized that there is a confounding factor: participles are more characteristic for less colloquial contexts. When we tried to search for 1SG and participle forms in the same documents, no tendency could be discerned. Therefore, we will refrain from any conclusions.

Finally, let us note that we did not mention E class verbs in this section. They behave as similar verbs from I class. Class E is not productive and includes only 45 unprefixated verbs, so it is less interesting to look at: different factors affecting alternations cannot be teased apart.

2.3 Class G-K

The complicated pattern of alternations in class G-K is shown in Table 4.

Infinitive		<i>žec'</i> 'to burn'	<i>peč'</i> 'to bake'
Past tense (M.SG and F.SG forms)		<i>žěg, žgla...</i>	<i>pěk, pekla...</i>
Present tense	1SG	<i>žgu</i>	<i>peku</i>
	2SG	<i>žžěš</i>	<i>pečěš</i>
	3SG	<i>žžět</i>	<i>pečět</i>
	1PL	<i>žžěm</i>	<i>pečěm</i>
	2PL	<i>žžěte</i>	<i>pečěte</i>
	3PL	<i>žgut</i>	<i>pekut</i>
Imperative	2SG	<i>žgi</i>	<i>peki</i>
	2PL	<i>žgite</i>	<i>pekite</i>
Active present participle		<i>žguščij</i>	<i>pekuščij</i>
Passive present participle		-	<i>pekomyj</i>
Active past participle		<i>žegšij</i>	<i>pekšij</i>
Passive past participle		<i>žžěnyj</i>	<i>pečěnyj</i>

Table 4. Conjugation of some G-K class verbs

This class is not productive and contains only 19 unprefixated verbs. *č* in the infinitive results from fusion of *g* or *k* with the infinitival suffix, so

g // č is not a regular alternation in Russian, it can be found only in these forms. Interestingly, all G-K verbs, including highly frequent ones, are to a certain extent affected by the degradation of alternations (frequent I and E verbs are virtually intact). Non-standard paradigm leveling goes in two opposite directions. To show that underapplication of alternations is more frequent than overapplication we did the following.

We took 14 G-K verbs listed in (7), one verb per root. Three verbs historically derived from *moč* 'to be able to', *peč'sja* 'to take care of' and *voloč* 'to drag' were excluded (the last two due to inevitable confusion with *peč'sja* 'to be baked' and *voločit* 'to drag'). For every verb, we searched for 3SG and 3PL forms with alternations and without them using the method described in the introduction. In both cases, we looked through the first 1000 occurrences. The numbers of 3SG forms lacking alternations and of 3PL forms with incorrectly added alternations are given in parentheses.

(7) *sžeč* 'to burn' (67|0), *vyseč* 'to whip, to carve' (29|1), *izreč* 'to utter' (22|0), *zaprjač* 'to harness' (20|1), *strič* 'to cut, to clip' (18|0), *peč* 'to bake' (12|0), *zavleč* 'to entice' (11|0), *podstereč* 'to waylay' (9|0), *teč* 'to flow' (8|0), *bereč* 'to spare' (6|0), *obleč* 'to clothe, to cover' (4|0), *obreč* 'to doom' (4|1), *smoč* 'to be able to' (0|0), *prenebreč* 'to neglect' (0|1)

No incorrect forms of *smoč* 'to be able to' appeared in our samples, although in general they are attested. For 12 out of the other 13 verbs underapplication is more frequent than overapplication. This difference is significant ($p=0.001$ according to the chi-square test). In total, we found 210 examples of underapplication and 5 examples of overapplication. For 11 out of 12 verbs, there is a significant difference between the number of forms involving underapplication and overapplication ($p<0.05$ according to the chi-square test for all comparisons).

2.4 Class A

Class A has alternations in all present/future forms and in the active present participle: e.g. *pisat* 'to write' – *pišu* 'write_{PRS.1SG}', *pišeš* 'write_{PRS.2SG}' etc. – *pišuščij* 'writing'. This is a non-productive class with 91 unprefixing verbs. A verbs rarely lack alternations.

However, a different process is at work. In the course of last centuries, about 30 unprefixing verbs and their derivatives developed

parallel present/future forms derived according to productive models (AJ class, with a couple of exceptions) and got rid of consonant alternations as a result. In some verbs, like *stradat'* 'to suffer', the old forms became archaic: e.g. the 1SG form *straždu* is now replaced by *stradaju*. In some others, like *maxat'* 'to wave', the new forms are listed in dictionaries, but still dispreferred. A number of verbs, like *prjatat'* 'to hide', did not develop new forms at all. And yet in the others the meanings of old and new forms diverged: e.g. the new forms from *dvigat'* 'to move' denote physical movement, while the old ones are used to describe motives.

Various factors affecting the distribution of different forms are studied in detail (e.g. Graudina et al. 1976; Nessel 2010; Nessel & Janda 2010; Nessel & Kuznestova 2011; Shvedova, ed., 1982), so we will not discuss them here. We can add that we found non-standard forms like *bormočal* 'mumble_{PST.M.SG}' or *bormočavšij* 'mumbling_{PST}' (instead of *bormotal*, *bormotavšij*). Thus, this is another case when two opposing processes, reanalysis according to a productive class model that leads to the loss of alternations and overapplication of alternations, coexist.

According to (Shvedova, ed., 1982), three non-prefixed I class verbs, *ezdit'* 'to go, to drive', *lazit'* 'to climb' and *elozit'* 'to fidget' have non-standard forms derived according to the IJ class model. These forms lack alternations: e.g. *ezdiju* 'go_{PRS.1SG}' instead of *ezžu*.¹⁰ Similar forms from non-standard I class verbs also exist, but are very rare: e.g. *zafrendiju* from *zafrendit'* 'to include in the friend list' discussed in section 2.2.1. Otherwise, verbs from classes I, E and G-K do not undergo class shifts.

3. Other leveling processes

This section contains a cursory description of two other paradigm leveling processes affecting Russian verbs.

3.1 Getting rid of inconsistent stress patterns

The stress patterns of Russian verbs in the present/future tense and in the past tense are illustrated in Table 5 on the examples of *dělat'* 'to do', *trjasti* 'to shake', *pisat'* 'to write' and *sorvat'* 'to pluck'. In *a* patterns, the stress falls on the stem, in *b* patterns, it falls on the endings (with the exception of zero endings), and *c* patterns are mixed.

¹⁰ In standard Russian, only two unprefixated verbs belong to IJ class.

Present/future tense				Past tense			
	a	b	c		a	b	c
INF	<i>délat'</i>	<i>trjastí</i>	<i>pisát'</i>	INF	<i>délat'</i>	<i>trjastí</i>	<i>sorvát'</i>
1SG	<i>délaju</i>	<i>trjasú</i>	<i>pišú</i>	M.SG	<i>délal</i>	<i>trjás</i>	<i>sorvál</i>
2SG	<i>délaeš'</i>	<i>trjasés'</i>	<i>pišeš'</i>	F.SG	<i>délala</i>	<i>trjaslá</i>	<i>sorvalá</i>
3SG	<i>délaet</i>	<i>trjasét</i>	<i>pišet</i>	N.SG	<i>délalo</i>	<i>trjasló</i>	<i>sorválo</i>
1PL	<i>délaem</i>	<i>trjasém</i>	<i>pišem</i>	PL	<i>délali</i>	<i>trjasli</i>	<i>sorváli</i>
2PL	<i>délaete</i>	<i>trjaséte</i>	<i>pišete</i>				
3PL	<i>délajut</i>	<i>trjasút</i>	<i>pišut</i>				

Table 5. Stress patterns of Russian verbs

According to the database of Russian verbs mentioned above (www.slioussar.ru/verbdatabase.html), all three patterns are considerably frequent in the present/future forms. However, in the past forms, the *b* and *c* patterns are realized only in a small number of verbs from several non-productive classes. Almost all verbs in the *c* stress pattern have a non-standard F.SG form with the stress on the stem, as in all other past forms: e.g. *sorvála* instead of *sorvalá*. Some verbs also have a N.SG form with the stress on the ending: e.g. *sorvaló* instead of *sorválo*. Most of these forms are non-standard (Dobrushina 2011).

Verbs with the reflexive postfix *-sja* have the same stress patterns as other verbs except for *c* pattern in the past tense. Consider past forms from *sorvát'sja* 'to break loose': *sorválsja* and archaic *sorvalsjá*, *sorvalás'* and non-standard *sorválás'*, *sorvalós'* and *sorválos'* (both are normative), *sorvalís'* and *sorválís'* (Zaliznjak (1987) lists both forms as acceptable, while most dictionaries give only the first one). Presumably, this variation is also triggered by paradigm leveling.

3.2 Getting rid of suffix alternations

NU and (NU) verb classes have suffix alternations illustrated in Table 6 on the example of *tolknut'* 'to push' and *oslepnut'* 'to become blind'.¹¹

	Infinitive	Past tense	Future tense
NU-class	<i>tolknut'</i>	<i>tolknul, tolknula...</i>	<i>tolknu, tolkneš'...</i>
(NU)-class	<i>oslepnut'</i>	<i>oslep, oslepla...</i>	<i>oslepnu, oslepneš'...</i>

Table 6. NU and (NU) verb classes

¹¹ Class (NU) contains two groups of verbs: in the first one, *nu* is absent more often than in the second one (active past participles can be taken as an example: e.g. *oslepšij* from *oslep**nut'*** 'to become blind' vs. *svergn**u**všij* from *svergn**u**t'* 'to dethrone').

Class NU is productive, and class (NU) is not. Many (NU) verbs undergo leveling. Most often, *nu* is inserted in the past forms. About 40 unprefixated verbs and their derivatives are affected: e.g. *pomerknu* instead of *pomerk* from *pomerknu* 'to dim, to fade'. At the same time, other verbs developed infinitive variants without *nu*: e.g. *dostič* instead of *dostignut* 'to achieve', *styt* instead of *stynut* 'to cool down'. This is discussed in (e.g. Graudina 1980; Shvedova, ed., 1982; Nessel & Makarova, 2012).

We can make the following contribution to this discussion. Infinitive variants like *dostič* 'to achieve' and *voskresti* or *voskrest* 'to resurrect' resemble G-K class verbs like *bereč* 'to protect' and Z-S class verbs like *nesti* 'to carry'. On the Internet we could find singular examples of future forms derived according to these models: e.g. 3SG forms *dostigët* or *dostižët* instead of *dostignet*, *voskresët* instead of *voskresnet*.

4. Conclusions

In this paper, we discussed several paradigm leveling processes that affect Russian verbs, focusing primarily on the fate of historic consonant alternations. We analyzed innovative non-standard forms from different verbs and showed that often, leveling simultaneously goes in two opposite directions. However, some innovations are more frequent than the others. We observed that underapplication of consonant alternations is more widespread than overapplication and discussed this problem in detail for G-K verb class, where numerous non-standard examples of both types can be found. Although the present/future paradigm of G-K verbs includes four forms with alternations and two forms without them, innovative present/future forms lacking alternations prevail dramatically.

Studying various verbs from class I we demonstrated that leveling is influenced by the following factors. Firstly, less frequent verbs lack alternations more often. Secondly, non-standard verbs have more forms without alternations. Thirdly, the proportion of forms lacking alternations is the highest for stems ending in obstruent clusters and the lowest for the stems ending in labials (where the epenthetic *l* is standardly used).

As we noted in the introduction, many competing approaches to paradigm leveling exist. But we are cautious to interpret our results in favor of any theory. For example, the fact that underapplication of alternations is preferred to overapplication is problematic for McCarthy's (2005) framework, being more readily compatible with accounts like

(Albright 2002, 2010). However, these and other theories were primarily designed to work with different data, explaining why some groups of words developed particular established forms rather than predicting different frequencies of various non-standard innovations. We strongly believe that the general principles should be the same in both cases, but some adaptation is still needed, and we leave this for further research.

To give another example, alternations that are unattested in standard Russian can be taken as evidence that speakers, at least in some cases, rely on conditions on outputs (form X should contain consonant A) rather than on input-output relations (stem-final consonant B becomes A in form X) (e.g. Bybee 1995). However, this does not readily predict the vast diversity of such alternations, as well as their very low frequency compared not only to “standard” alternations, but also to the cases where alternations are missing. These facts still await their explanation.

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